Intervals, Transformations, and Slope Solution (version 154)

1. The function f is graphed below.
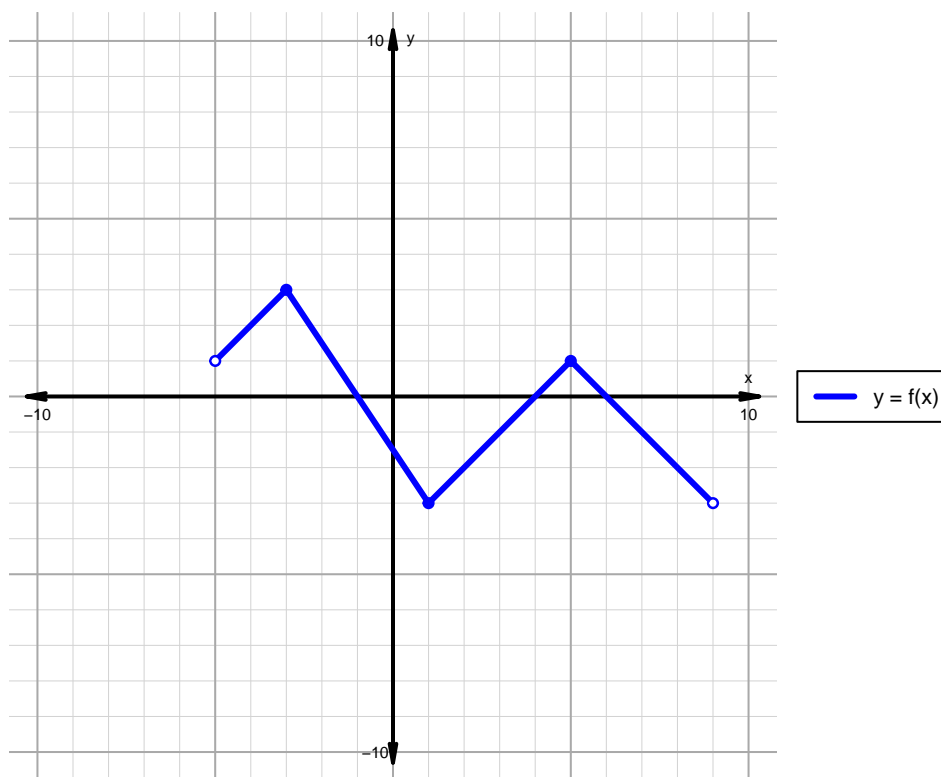
Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate x values; this is standard.

Feature	Where
Positive	$(-5, -1) \cup (4, 6)$
Negative	$(-1, 4) \cup (6, 9)$
Increasing	$(-5, -3) \cup (1, 5)$
Decreasing	$(-3, 1) \cup (5, 9)$
Domain	$(-5, 9)$
Range	$(-3, 3)$

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2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.

$$y = f(2 \cdot x)$$

$$y = 2 \cdot f(x)$$

$$y = f(x) + 2$$

$$y = f(x - 2)$$
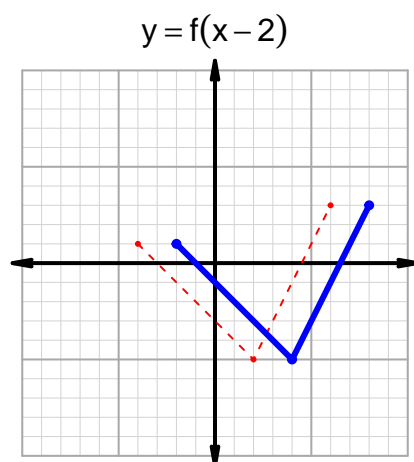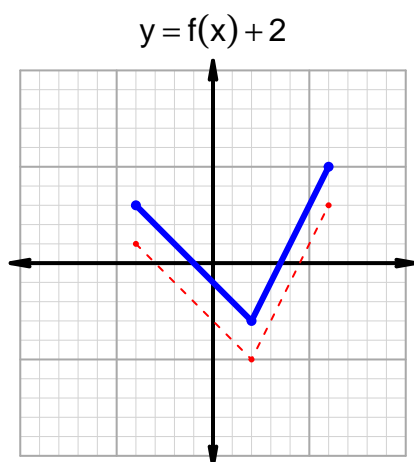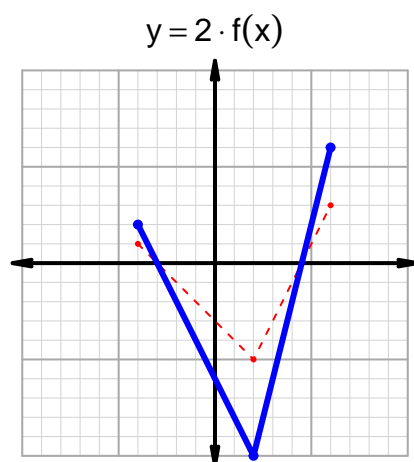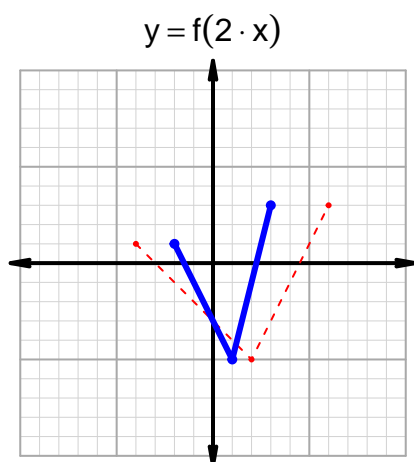
3. Let function g be defined by the table below. Use the formula $\frac{g(x_2) - g(x_1)}{x_2 - x_1}$ to find the average rate of change between $x_1 = 19$ and $x_2 = 91$. Express your answer as a reduced fraction.

x	$g(x)$
19	26
26	91
89	19
91	89

$\frac{g(91) - g(19)}{91 - 19} = \frac{89 - 26}{91 - 19} = \frac{63}{72}$

The greatest common factor of 63 and 72 is 9. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{7}{8}$$